

Application No. 10/823,311
Docket No. UC0423USNA

Remarks

The following remarks are responsive to the Examiner's rejection in the Office Action dated December 17, 2007.

Status of the Claims

Claims 1-12, 18, 20-22 are pending. Claims 13-15 and 19 have been withdrawn per election in response to a restriction requirement. Claims 16 and 17 are canceled herein. Claim 22 is added herein. Claims 1-12, 18, 20 and 21 are amended herein.

Claims 1-12 and 16-18 stand rejected under 35 U.S.C. § 102.

Amendments to the Claims

Claim 1 is amended to incorporate the limitations of Claims 16 and 17, now canceled, and to recite that the buffer layer is between an anode and an active organic material layer. Support for this can be found at page 18, lines 18-21. No new matter is introduced.

Claims 2-12, 20 and 21, which are dependent on Claim 1, are amended to recite an electronic device. No new matter is introduced.

Claim 18 is amended to be dependent on Claim 1. No new matter is introduced.

Claim 22 is added to recite an organic light-emitting diode having an anode, a buffer layer, an electroluminescent layer, and a cathode. Support for this can be found at page 19, lines 1-10. No new matter is introduced.

Claim Rejections – 35 U.S.C. § 102

[1] Ohtani et al., U.S. Patent 4,869,979 ("Ohtani").

Claims 1-12, 16-18 and 20 stand as rejected under 35 U.S.C. § 102(b) as being anticipated by Ohtani.

Ohtani relates to a battery having a metal anode and a conducting polymer cathode. A solid polymer electrolyte such as "Nafion" may be used between them. However, this is not the same as Applicants' electronic device as recited in Claim 1, as amended herein. In Applicants' claimed device there is an anode, a first layer of doped conductive polymer, a second layer comprising a material selected from a colloid-forming polymeric acid, a salt of a colloid-forming polymeric acid, a non-polymeric fluorinated organic acid, and a salt of a non-polymeric fluorinated organic acid, and an active organic material layer. Applicants respectfully submit

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that Ohtani does not teach or suggest an electronic device having a composite buffer layer between an anode and an active organic material layer. Furthermore, Ohtani does not teach or suggest an organic light-emitting diode as recited in newly added Claim 22.

Applicants respectfully submit that this rejection has been overcome and request that it be withdrawn.

[2] Kokonaski et al., U.S. published application 2004/0217877 ("Kokonaski")

Claims 1-12, 16-18 and 20 stand as rejected under 35 U.S.C. § 102(b) as being anticipated by Kokonaski.

Kokonaski relates to flexible electronic displays systems. In Figures 4A and 5A Kokonaski discloses a device structure in which a layer of solid electrolyte, such as "Nafion" is formed over a conducting polymer electrode. A counter electrode or 2nd gate contact is formed separately on the support, not in contact with the conducting polymer. However, this is not the same as Applicants' electronic device as recited in Claim 1, as amended herein. In Applicants' claimed device there is an anode, a first layer of doped conductive polymer, a second layer comprising a material selected from a colloid-forming polymeric acid, a salt of a colloid-forming polymeric acid, a non-polymeric fluorinated organic acid, and a salt of a non-polymeric fluorinated organic acid, and an active organic material layer. Kokonaski further discloses an OLED structure. However, there is no teaching or suggestion of an OLED having a composite buffer layer between the anode and the electroluminescent layer, where the composite buffer layer comprises a first layer comprising at least one doped conductive polymer and a second layer comprising a material selected from a colloid-forming polymeric acid, a salt of a colloid-forming polymeric acid, a non-polymeric fluorinated organic acid, and a salt of a non-polymeric fluorinated organic acid, as recited in newly added Claim 22.

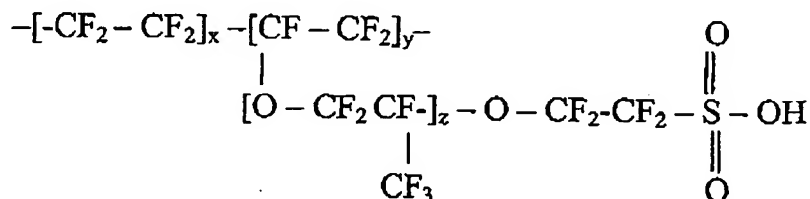
Applicants respectfully submit that this rejection has been overcome and request that it be withdrawn.

[3] Hsu et al., U.S. published application 2004/0102577 ("Hsu")

Claims 1-12, 16-18 and 20 stand as rejected under 35 U.S.C. § 102(e) as being anticipated by Hsu.

Hsu discloses PEDT/Nafion[®] in a device having two buffer layers. The second buffer layer comprises CH8000 which is PEDT/PSSA (Examples 11 and 12). In Example 11, the

PEDT/Nafion[®] layer is in contact with the ITO anode, and in Example 12, the PEDT/Nafion[®] layer is in contact with the EL layer. Nafion[®] has the following general structure :



The top structure is a linear polymer with a backbone of methylene groups and side chains consisting of a phenyl ring with a sulfonate group (SO_3^-) or a sulfonic acid group (SO_3H). The bottom structure is a ladder polymer with a backbone of thiophene rings and side chains consisting of a furan ring fused to a thiophene ring, with a sulfonate group (SO_3^-) or a sulfonic acid group (SO_3H).

Claim 1, as presently pending, is instructive in that the claims require a composite buffer comprising a first layer comprising at least one doped conductive polymer and a second layer comprising a material selected from a colloid-forming polymeric acid, a salt of a colloid-forming polymeric acid, a non-polymeric fluorinated organic acid, and a salt of a non-polymeric fluorinated organic acid, wherein the composition of the first layer and the second layer is different. It is respectfully submitted that the disclosure in Hsu does not meet these conditions.

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The two buffer layers disclosed in Hsu are in contact with each other as noted in the Office Action, but do not address the same claim elements, in the same order, as the presently pending claim. First, there is no doped conductive polymer in Hsu. Second, the composite buffer layer in the present claims comprises two layer: (i) the first has at least one doped conductive polymer, and (ii) the second has a material selected from: a colloid-forming polymeric acid, a salt of a colloid-forming polymeric acid, a non-polymeric fluorinated organic acid, and a salt of a non-polymeric fluorinated organic acid, and (iii) wherein the composition of the first layer and the second layer is different.

Hsu, by contrast, teaches an OLED device having two buffer layers: (i) one buffer layer is PEDT/Nafion[®] and (ii) the second buffer layer is Baytron[®] (PEDT/PSSA). Both buffers in Hsu have a conductive polymer and a polymeric acid. As shown above, Nafion[®] is fluorinated while PSSA is not. PSSA is also polymeric. The present claims are directed to a single composite buffer comprising two layers, where the first layer has a doped conductive polymer and the second layer is either a colloid-forming polymeric acid or salt or a non-polymeric fluorinated organic acid or salt.

Since Hsu does not teach or fairly suggest the elements of the present claims, it cannot anticipate these claims. Applicants respectfully request that this rejection be withdrawn.

Applicants would also like to point out, in the interest of thoroughly and completely responding to the Office Action, that Hsu was cited as a 35 U.S.C. § 102(e) reference. Hsu was published on May 27, 2004, while the present application was filed on April 13, 2004, and therefore, Hsu is not available as either a § 102(a) or a § 102(b) reference against this application.

[4] Gryko et al., U.S. Patent 6,324,091 ("Gryko")

Claims 1-12, 16-18 and 20 stand as rejected under 35 U.S.C. § 102(b) as being anticipated by Gryko.

Gryko discloses memory storage devices in which a porphyrinic storage medium is between a working electrode and a reference electrode, with a "Nafion" electrolyte between the storage medium and the reference electrode. The working electrode may be an organic conductor such as doped polythiophene. However, this is not the same as Applicants' electronic device as recited in Claim 1, as amended herein. In Applicants' claimed device there is an

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anode, a first layer of doped conductive polymer, a second layer comprising a material selected from a colloid-forming polymeric acid, a salt of a colloid-forming polymeric acid, a non-polymeric fluorinated organic acid, and a salt of a non-polymeric fluorinated organic acid, and an active organic material layer. Applicants respectfully submit that Gryko does not teach or suggest an electronic device having a composite buffer layer between an anode and an active organic material layer. Furthermore, Gryko does not teach or suggest an organic light-emitting diode as recited in newly added Claim 22.

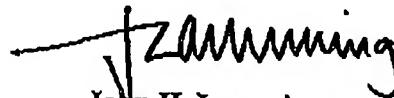
Applicants respectfully submit that this rejection has been overcome and request that it be withdrawn.

Conclusion

On the basis of the foregoing amendments and remarks, Applicants respectfully submit that claims 1-12, 18, 20-22 are in condition for allowance. A notice of allowance for those claims is earnestly solicited.

If there are any questions about the status of the claims or the contents of this paper, the Examiner is invited to call the undersigned at the telephone number listed below.

Respectfully submitted,



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Dated: May 19, 2008